LAMPIRAN

UNIVERSITAS NEGERI YOGYAKARTA
FAKULTAS TEKNIK

PERMOHONAN PEMBIMBING PROYEK AKHIR/~~TUGAS AKHIR SKRIPSI~~

FRM/OTO/01-00
27 Maret 2008

Kepada Yth : Bapak. Sudiyanto, M.Pd.
Calon Pembimbing Proyek Akhir/~~Tugas Akhir Skripsi~~

Sehubungan dengan rencana Proyek Akhir/~~Tugas Akhir Skripsi~~ Mahasiswa (terlampir) mohon dengan hormat untuk memberikan masukan dan menjadi pembimbing Proyek Akhir/~~Tugas Akhir Skripsi~~ mahasiswa tersebut di bawah ini:

Nama : Hario Sri Mulyanto
NIM : 0050913103B
Kelas : B
Jurusan : Teknik Otomotif
Judul PA/TAS : ~~Perbaikan body dan~~ Pengecatan body kendaraan pada mobil Mitsubishi Galant tahun 1981

Yogyakarta, 4-10-2011
Yang Membuat,
Kaprodi Teknik Otomotif,

Moch. Solikin, M. Kes.
NIP. 19680404 199303 1 002

Buat Rangkap 3 :

1. Untuk Mahasiswa
2. Arsip Prodi D3 Teknik Otomotif
3. Untuk Dosen Pembimbing

UNIVERSITAS NEGRI OGYAKARTA

F A K U L T A S T E H N I K

KARTU BIMBINGAN PROYEK AKHIR / TUGAS AKHIR SKRIPSI

FRM/OTO/04-00
27 Maret 2008

Nama Mahasiswa : Heri Sri Mulyanto
No. Mahasiswa : 08509131038
Judul PA / TAS : ~~Perbaikan body dan~~ Pengecatan Body kendaraan Pada Mobil Mitsubishi Galant tahun 1981
Dosen Pembimbing : Sudiyanto, M.Pd

Bimb. Ke	Hari/Tanggal Bimbingan	Materi Bimbingan	Catatan Dosen Pembimbing	Tanda tangan Dosen Pemb
1	Kamis 12-01-2012	Bab 1	secara keseluruhan dari tatar belakang masalah sampai manfaat perlu direvisi	
2	Kamis 19-01-2012	Bab 1	Point-Point pada rumusan masalah perlu direvisi.	
3	Kamis 23-02-2012	Bab III	perhitungan luas kerusakan, alat dwaktu sertabahan.	
4	Jum'at 2-03-2012	Bab IV	Siapkan persiapan pengujian dan	
~~5~~	~~9-03~~		Kebutuhan alat & bahan	
~~6~~ 5	Jum'at 9-03-2012	Bab IV	alat, bahan,	
~~7~~			bab V & V	
~~8~~ 6	Jum'at 23-03-2012	Bab IV & V	alat, bahan	
~~9~~ 7	Rabu 04-04-2012	Bab V.	alat lagi.	
~~10~~ 8	Selasa 10-04-2012	Bab V	Siapmaju	

Keterangan :

1. Mahasiswa wajib bimbingan minimal 6 kali
   Bila lebih dari 6 kali. Kartu ini boleh dicopy.
2. Kartu ini wajib dilampirkan pada laporan PA/TAS

UNIVERSITAS NEGRI YOGYAKARTA

FAKULTAS TEHNI K

KARTU BIMBINGAN PROYEK AKHIR / TUGAS AKHIR SKRIPSI

FRM/OTO/04-00
27 Maret 2008

Nama Mahasiswa : Heri Sri Mulyanto
No. Mahasiswa : 09509131038
Judul PA / TAS : ~~Perbaikan body dan~~ Pengecatan body Kendaraan Pada mobil Mitsubishi 6'an tahun 1981
Dosen Pembimbing : Sudiyanto, M.Pd

Bimb. Ke	Hari/Tanggal Bimbingan	Materi Bimbingan	Catatan Dosen Pembimbing	Tanda tangan Dosen Pemb
1 9	Selasa 15-5-2012	Bab. I	oke.	
2			lustrasi di	
3			Sumber data	
10 4 2.	Selasa 22-5-2012	Bab II	Perlehan ?	
11 5	Selasa 29-5-2012	Bab III	Fleksi	
6		Leri.	Fleksi	
7				
8				
9				
10				

Keterangan :

1. Mahasiswa wajib bimbingan minimal 6 kali
   Bila lebih dari 6 kali. Kartu ini boleh dicopy.
2. Kartu ini wajib dilampirkan pada laporan PA/TAS

UNIVERSITAS NEGERI YOGYAKARTA
FAKULTAS TEKNIK

SURAT KETERANGAN BEBAS PINJAM

FRM/OTO/12-00
27 Maret 2008

Dengan ini saya menyatakan bahwa :

Nama Mahasiswa : Heri Sri Mulyanto

No. Mahasiswa : 08509131038

Judul PA/TAS : Pengecatan Ulang Mobil Mitsubishi Galant tahun 1981 bagian samping kanan

Sudah tidak mempunyai tanggungan/pinjaman ditempat kerja saya :

No	Tempat kerja	Tanggal	Tanda Tangan Petugas
1	Perpustakaan Jurusan	30-5-2012	
2	Bengkel listrik otomotif	30-5-2012	
3	Bengkel Chasis	30-5-2012	
4	Bengkel Auto Body	30-5-2012	
5	Bengkel Engine	30-5-2012	
6	Bengkel Sepeda Motor	30-5-2012	
7	Dst		

Demikian surat keterangan ini dibuat,agar digunakan sebagaimana mestinya.

30 MAY 2012

Mengetahui
Pembimbing PA/TAS

Sudiyanto
NIP. 19540221 198502 1 001

Catatan :
Dibuat 2 lembar
1. Untuk Arsip Jurusan
2. Untuk Mahasiswa

LEMBAR PENILAIAN PROYEK AKHIR

Dengan ini menyatakan bahwa :

Nama : Heri Sri Mulyanto

NIM : 08509131038

Jurusan : D3 Teknik Otomotif

Judul PA : ~~Perbaikan dan~~ Pengecatan Bodi Mobil Mitsubishi Galant 1981 bagian samping kanan.

Petunjuk lembar penilaian :

Dimohon berkenan menilai dengan cara memberikan nilai pada kolom penilaian dibawah ini. Penilaian meliputi permukaan bodi mobil bagian samping kanan yang telah di cat, dengan mempertimbangkan aspek kerataan permukaan, kehalusan permukaan, daya kilap, dan kecacatan.

1. Kualitas hasil pengecatan

Penilaian Bagian Samping Kanan				
No.	**Item Penilaian**	**Penilaian**		
		2	**1**	**0**
1	Kehalusan Permukaan Cat			80
2	Kerataan Permukaan Cat			75
3	Daya kilap Cat			86

Keterangan nilai pengecatan :

Nilai 2 : Sangat Baik (99-100)

Nilai 1 : Baik (90-99)

Nilai 0 : Kurang Baik (<90)

2. Kesempurnaan hasil pengecatan

Penilaian Bagian Samping Kanan				
No.	**Jenis kecacatan**	**Penilaian**		
		2	**1**	**0**
1	Bintik (*Seed*)			✓
2	Mata Ikan (*Fish eyes*)		✓	
3	Kulit Jeruk (*Orange Peel*)		✓	
4	Meleleh (*Runs*)		✓	
5	Mengkerut (*Shrinkage*)		✓	
6	Lubang Kecil (*Pinholes/Scales)*			✓
7	Tanda dempul (*Putty Marks*)			✓
8	Goresan Amplas (*Sandeng Scratches*)	✓		
9	Memudar (*Fade*)		✓	

Keterangan Hasil nilai cacat pengecatan :

Nilai 2 : Relatif tidak ada kecacatan

Nilai 1 : Sedikit ada kecacatan

Nilai 0 : Banyak kecacatan

Yogyakarta, 4/5 2012

Penilai

Gunadi, M.Pd

2. Kesempurnaan hasil pengecatan

Penilaian Bagian Samping Kanan				
No.	**Jenis kecacatan**	**Penilaian**		
		2	**1**	**0**
1	Bintik (*Seed*)		✓	
2	Mata Ikan (*Fish eyes*)	✓		
3	Kulit Jeruk (*Orange Peel*)	✓		
4	Meleleh (*Runs*)	✓		
5	Mengkerut (*Shrinkage*)	✓		
6	Lubang Kecil (*Pinholes/Scales)*		✓	
7	Tanda dempul (*Putty Marks*)		✓	
8	Goresan Amplas (*Sandeng Scratches*)	✓		
9	Memudar (*Fade*)	✓		

Keterangan Hasil nilai cacat pengecatan :

Nilai 2 : Relatif tidak ada kecacatan

Nilai 1 : Sedikit ada kecacatan

Nilai 0 : Banyak kecacatan

Yogyakarta, 3 Mei 2012

Penilai

NOTO WIDODO, MPd

LEMBAR PENILAIAN PROYEK AKHIR

Dengan ini menyatakan bahwa :

Nama : Heri Sri Mulyanto

NIM : 08509131038

Jurusan : D3 Teknik Otomotif

Judul PA : ~~Perbaikan dan~~ Pengecatan Bodi Mobil Mitsubishi Galant 1981 bagian samping kanan.

Petunjuk lembar penilaian :

Dimohon berkenan menilai dengan cara memberikan nilai pada kolom penilaian dibawah ini. Penilaian meliputi permukaan bodi mobil bagian samping kanan yang telah di cat, dengan mempertimbangkan aspek kerataan permukaan, kehalusan permukaan, daya kilap, dan kecacatan.

1. Kualitas hasil pengecatan

Penilaian Bagian Samping Kanan				
No.	**Item Penilaian**	**Penilaian**		
		2	**1**	**0**
1	Kehalusan Permukaan Cat		90	
2	Kerataan Permukaan Cat		85	
3	Daya kilap Cat		90	

Keterangan nilai pengecatan :

Nilai 2 : Sangat Baik (99-100)

Nilai 1 : Baik (90-99)

Nilai 0 : Kurang Baik (<90)

2. Kesempurnaan hasil pengecatan

Penilaian Bagian Samping Kanan				
No.	**Jenis kecacatan**	**Penilaian**		
		2	**1**	**0**
1	Bintik (*Seed*)		✓	
2	Mata Ikan (*Fish eyes*)		✓	
3	Kulit Jeruk (*Orange Peel*)		✓	
4	Meleleh (*Runs*)	✓		
5	Mengkerut (*Shrinkage*)	✓		
6	Lubang Kecil (*Pinholes/Scales)*	✓		
7	Tanda dempul (*Putty Marks*)			✓
8	Goresan Amplas (*Sandeng Scratches*)			✓
9	Memudar (*Fade*)	✓		

Keterangan Hasil nilai cacat pengecatan :

Nilai 2 : Relatif tidak ada kecacatan

Nilai 1 : Sedikit ada kecacatan

Nilai 0 : Banyak kecacatan

Yogyakarta, 4-5-2012

Penilai

Bambang Sulistyo, M.Eng

LEMBAR PENILAIAN PROYEK AKHIR

Dengan ini menyatakan bahwa :

Nama : Heri Sri Mulyanto

NIM : 08509131038

Jurusan : D3 Teknik Otomotif

Judul PA : ~~Perbaikan dan~~ Pengecatan Bodi Mobil Mitsubishi Galant 1981 bagian samping kanan.

Petunjuk lembar penilaian :

Dimohon berkenan menilai dengan cara memberikan nilai pada kolom penilaian dibawah ini. Penilaian meliputi permukaan bodi mobil bagian samping kanan yang telah di cat, dengan mempertimbangkan aspek kerataan permukaan, kehalusan permukaan, daya kilap, dan kecacatan.

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Keterangan nilai pengecatan :

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LEMBAR PENILAIAN PROYEK AKHIR

Dengan ini menyatakan bahwa :

Nama : Heri Sri Mulyanto

NIM : 08509131038

Jurusan : D3 Teknik Otomotif

Judul PA : Pengecatan Ulang Mobil Mitsubishi Galant 1981 bagian samping kanan.

Petunjuk lembar penilaian :

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1. Kualitas hasil pengecatan

Penilaian Bagian Samping Kanan				
No.	**Item Penilaian**	**Penilaian**		
		2	**1**	**0**
1	Kehalusan Permukaan Cat		90	
2	Kerataan Permukaan Cat			85
3	Daya kilap Cat		90	

Keterangan nilai pengecatan :

Nilai 2 : Sangat Baik (99-100)

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2. Kesempurnaan hasil pengecatan

Penilaian Bagian Samping Kanan				
No.	**Jenis kecacatan**	**Penilaian**		
		2	**1**	**0**
1	Bintik (*Seed*)		✓	
2	Mata Ikan (*Fish eyes*)	✓		
3	Kulit Jeruk (*Orange Peel*)		✓	
4	Meleleh (*Runs*)	✓		
5	Mengkerut (*Shrinkage*)	✓		
6	Lubang Kecil (*Pinholes/Scales)*		✓	
7	Tanda dempul (*Putty Marks*)		✓	
8	Goresan Amplas (*Sandeng Scratches*)	✓		
9	Memudar (*Fade*)	✓		

Keterangan Hasil nilai cacat pengecatan :

Nilai 2 : Relatif tidak ada kecacatan

Nilai 1 : Sedikit ada kecacatan

Nilai 0 : Banyak kecacatan

Yogyakarta, 12 Mei 2012

Penilai

.....

Mr Setiawan

LEMBAR PENILAIAN PROYEK AKHIR

Dengan ini menyatakan bahwa :

Nama : Heri Sri Mulyanto

NIM : 08509131038

Jurusan : D3 Teknik Otomotif

Judul PA : Pengecatan Ulang Mobil Mitsubishi Galant 1981 bagian samping kanan.

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1. Kualitas hasil pengecatan

Penilaian Bagian Samping Kanan				
No.	**Item Penilaian**	**Penilaian**		
		2	**1**	**0**
1	Kehalusan Permukaan Cat			88
2	Kerataan Permukaan Cat			80
3	Daya kilap Cat		90	

Keterangan nilai pengecatan :

Nilai 2 : Sangat Baik (99-100)

Nilai 1 : Baik (90-99)

Nilai 0 :Kurang Baik (<90)

2. Kesempurnaan hasil pengecatan

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No.	**Jenis kecacatan**	**Penilaian**		
		2	**1**	**0**
1	Bintik (*Seed*)		✓	
2	Mata Ikan (*Fish eyes*)		✓	
3	Kulit Jeruk (*Orange Peel*)	✓		
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5	Mengkerut (*Shrinkage*)	✓		
6	Lubang Kecil (*Pinholes/Scales)*			✓
7	Tanda dempul (*Putty Marks*)		✓	
8	Goresan Amplas (*Sandeng Scratches*)	✓		
9	Memudar (*Fade*)	✓		

Keterangan Hasil nilai cacat pengecatan :

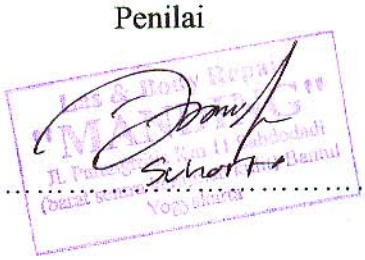
Nilai 2 : Relatif tidak ada kecacatan

Nilai 1 : Sedikit ada kecacatan

Nilai 0 : Banyak kecacatan

Yogyakarta, 20 mei 2012

Penilai



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LEMBAR PENILAIAN PROYEK AKHIR

Dengan ini menyatakan bahwa :

Nama : Heri Sri Mulyanto

NIM : 08509131038

Jurusan : D3 Teknik Otomotif

Judul PA : Pengecatan Ulang Mobil Mitsubishi Galant 1981 bagian samping kanan.

Petunjuk lembar penilaian :

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1. Kualitas hasil pengecatan

Penilaian Bagian Samping Kanan				
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		2	**1**	**0**
1	Kehalusan Permukaan Cat		90	
2	Kerataan Permukaan Cat			75
3	Daya kilap Cat		90	

Keterangan nilai pengecatan :

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Nilai 2 : Baik (90-99)

Nilai 3 :Kurang Baik (<90)

2. Kesempurnaan hasil pengecatan

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No.	**Jenis kecacatan**	**Penilaian**		
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2	Mata Ikan (*Fish eyes*)		✓	
3	Kulit Jeruk (*Orange Peel*)		✓	
4	Meleleh (*Runs*)	✓		
5	Mengkerut (*Shrinkage*)	✓		
6	Lubang Kecil (*Pinholes/Scales)*		✓	
7	Tanda dempul (*Putty Marks*)		✓	
8	Goresan Amplas (*Sandeng Scratches*)	✓		
9	Memudar (*Fade*)	✓		

Keterangan Hasil nilai cacat pengecatan :

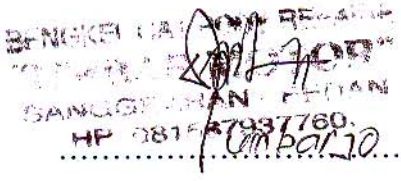
Nilai 2 : Relatif tidak ada kecacatan

Nilai 1 : Sedikit ada kecacatan

Nilai 0 : Banyak kecacatan

Yogyakarta, 30 Mei 2012

Penilai



CF Metal Primer 156

Technical Data Sheet: 153-44
P1566

1. Introduction

ALEXSEAL® CF Metal Primer 156 is a chromate free, high solid epoxy-based primer designed for priming metal surfaces where corrosion protection and chemical resistance is required.

2. Range of application

ALEXSEAL® CF Metal Primer 156 is designed to prime and seal new and old, properly prepared, metal surfaces prior to the application of ALEXSEAL® Topcoats or ALEXSEAL® Finish Primer 442. This product is ideal for masts, parts and thin gauge metal where minimal fairing is required. It may be top coated or primed depending on the application requirements. CF Metal Primer 156 may be used above and below the waterline.

3. Color

Colors of mixture: Ivory
Base material: Ivory
Converter: Clear

4. Coverage

Volume Solids catalyzed without reduction: 60%.
Coverage for ALEXSEAL® CF Metal Primer 156 when applying 1 - 2 coats or passes in the same application period.
Note: Coverage rates are figured for base and converter. Reducer is added as percent of total quantity of base & converter.

	m² / liter	m² / gal	sq. ft. / gal	Rec. DFT in µm (mils)
Theoretical/ Brush and Roller	22	83.3	876	25 (1)
Practical				
Conventional Air Spray Equipment	7.3	27.6	297	25 (1)
HVLP Air Spray Equipment	8.5	32	346	25 (1)
Airless Spray Equipment	10	37.8	407	25 (1)

5. Substrate pre-treatment

The substrate must be clean, dry and free from dust, grease, oil and other contamination.

ALEXSEAL® CF Metal Primer 156 may be applied directly to the properly cleaned and prepared Aluminium or Steel substrate to achieve optimum adhesion and performance:

Aluminium should be sanded with 80 - 180 grit or blasted depending on thickness of primer surfacer – or topcoat used over CF Metal Primer 156. 180 - 220 grit can be used to sand the metal when over coating CF Metal Primer 156 directly with Alexseal® Topcoat 501. Bright clean aluminium should always be achieved before application. The use of either Alumiprep® by itself or Alumiprep® and Alodine® treatment is recommended to clean and treat the aluminium to enhance corrosion resistance.

Please contact your Alexseal® Representative to discuss additional chemical treatment options.

6. Trade names

Base Material	P1566	ALEXSEAL® CF Metal Primer 156 Ivory
Converter	C1567	ALEXSEAL® CF Metal Primer 156 Converter
Reducer	R4042	ALEXSEAL® Epoxy Primer Reducer

7. Mixing ratio

2 parts by volume	P1566	ALEXSEAL® CF Metal Primer 156 Base
1 part by volume	C1567	ALEXSEAL® CF Metal Primer 156 Converter
10 – 20% by volume	R4042	ALEXSEAL® Epoxy Primer Reducer

Allow a 15 minute induction period after mixing base and converter, add reducer and remix.

Example: 2 : 1 : 3/10 = 10% reduction for spray application

The amount of reducer varies on the application conditions.

Professional Use Only

revision January 2011

Mankiewicz Coatings
415 Jessen Lane
Charleston SC 29492, USA
Tel. +1 843 654 7755
Fax +1 843 654 7759

www.alexseal.com

Mankiewicz Gebr. & Co.
Georg-Wilhelm-Str. 189
21107 Hamburg, Germany
Tel. +49 (0) 40 75 10 30
Fax +49 (0) 40 75 10 33 75

CF Metal Primer 156

Technical Data Sheet: 153-44
P1566

8. Application

Viscosity	Zahn #2: ≈ 15 sec, DIN 4 cup 4mm: ≈ 12 - 16 sec
Nozzle Size Gravity Gun	1.0 to 1.4 mm (0.040 to 0.055) - Conventional & HVLP
Nozzle Size Siphon Cup	1.4 to 1.6 mm (0.061 to 0.070) - Conventional & HVLP
Fluid Nozzle Size Pressure Pot	1.0 to 1.2 mm (0.040 to 0.046) - Conventional & HVLP
Atomizing Pressure	2.0 to 4.0 bar (30 to 60 PSI) - Conventional & HVLP
Pot Pressure	0.7 to 1.5 bar (10 to 15 PSI) - Conventional & HVLP

Application by Spraying

Apply 1 coat to a wet film thickness (WFT) of 40-50 microns (1.5-2 mil). This will achieve a dry film thickness (DFT) of 20-25 microns (1 mil). Minimum recommended film is 25 microns (1 mil) DFT. Maximum recommended film thickness during a spray application is 2 coats totaling 50-60 microns (2-3 mils) WFT, or 25-30 microns (1 mil) DFT.

9. Pot life and Drying

Optimal application environment range - min. 15°C (60°F) 40% RH, up to max. 30°C (85°F) 80% RH

Temperature for minimum recoat time	15°C (60°F)	20°C (68°F)	25°C (77°F)	30°C (85°F)	Max Dry Time
Pot Life - approx.	12 hrs	12 hrs	12 hrs	12 hrs	N/A
Dust Free	90 min	60 min	45 min	30 min	N/A
Tape Dry	30 hrs	24 hrs	18 hrs	14 hrs	N/A
Fully Cured	10 days	8 days	7 days	6 days	N/A
Overcoat with another product including 302, 357, 442 and 501. Sanding is required after max time.	5 hrs minimum	4 hrs minimum	3 hrs minimum	3 hrs minimum	72 hrs maximum
Note: The above chart reflects approximate minimum and maximum time. Surface temperature, air flow, direct or non-direct sunlight, quantity and or choice of reducer, and film thickness will effect actual tack up, recoat, overcoat, and drying times during application. During the drying phase the minimum temperature is 15°C (60°F). Ideal temperature: 25°C (77°F). The minimum application condition should be 3°C (5.4°F) above dew point.					

10. Packaging

P1566	ALEXSEAL® CF Metal Primer 156, Yellow	1 QT & 1 Gal
C1567	ALEXSEAL® CF Metal Primer 156, Converter	1 PT & $^1/_2$ Gal
R4042	ALEXSEAL® Epoxy Primer Reducer	1 QT & 1 Gal

Professional Use Only

revision January 2011

Mankiewicz Coatings
415 Jessen Lane
Charleston SC 29492, USA
Tel. +1 843 654 7755
Fax +1 843 654 7759

www.alexseal.com

Mankiewicz Gebr. & Co.
Georg-Wilhelm-Str. 189
21107 Hamburg, Germany
Tel. +49 (0) 40 75 10 30
Fax +49 (0) 40 75 10 33 75

RUST-OLEUM MATHYS
best solutions in paints & coatings

PRODUCT DATA — ADERAL

Andrews Coatings Ltd
Carver Building
Littles Lane
Wolverhampton
West Midlands
WV1 1JY

Tel. 01902 429190

info@mathysdirect.co.uk
www.mathysdirect.co.uk

DESCRIPTION
Solventbased primer-surfacer based on alkyd resins.

MAIN PROPERTIES
Easy to sand - excellent flow - excellent hiding power.

RECOMMENDED USES
- Interior application: prime coat on wood, plaster, Gyproc-panels.
- Exterior application: intermediate coat on wood or metal.

TECHNICAL DATA

Appearance:	Satin gloss (gloss 60°: ± 30%)
Colour:	White
Density:	1,40 - 1,43 g/cm³
Solids Content:	In volume: 50 – 53% In weight: 72 – 75%
Recommended film thickness:	Wet film: 80 micron (cons.: 13 m²/l) Dry film: 40 micron (cons.: 13 m²/l)
Flashpoint:	> 39°C
VOC-content:	375 g/l max.
Ready-for-use mixture:	399 g/l max.
Category:	A/g
EU Limit values:	450 g/l (2007) / 350 g/l (2010)

Drying times	20°C/50% r.h.
To touch:	3 hours
To handle:	4 hours
To recoat:	24 hours
Full hardness:	± 1 week

Coverage

Theoretical:	± 13 m²/l
Practical:	Practical coverage depends on many factors such as porosity and roughness of the substrate and material losses during application.

SURFACE PREPARATION
The substrate has to be stable, clean and dry.
Untreated wood: degrease, sand and dedust. For interior application: apply a coat of Adex first. Unpainted metal: degrease, derust, sand and dedust.
Iron work: apply a coat of Combiprimer first.
Zinc, galvanised steel: apply a coat of Galvaprim or Pegalink first.
Old paints in bad condition: strip, degrease, sand dry. Hereafter same application as for untreated wood or unpainted metal.
Chalking paints: remove loose parts by brushing and dedust. Hereafter, application of a coat of Fixonal. Old paints in good condition: sand and clean with white spirit.

DIRECTION FOR USE
To ensure homogeneity, coating materials should be thoroughly stirred prior to use.

2K Topcoat

Technical Data Sheet

02.01.08

L1.03.01

Description Two component, mixing machine based acrylic topcoat, available in a wide variety of direct gloss/solid colours. Specifically designed for refinishing passenger cars, but also suitable for refinishing light commercial vehicles and industrial machinery. Suitable for use on a wide variety of jobs and in most application conditions.

2 : 1 + 10%
2K Topcoat
Universal
Hardener (any)
Multi Thinner
(any)

Mixing Stick D
or Mixing Ratio
Chart

LVLP (HR) /
Conventional
2 x 1
1.3 - 1.5 mm
2.0 – 2.5 bar

HVLP
2 x 1
1.3 - 1.5 mm
0.7 bar

5 - 10 minutes
between coats
10 minutes
before baking

8 hours 20°C
30 mins 60°C

Product & Ancillary Items

Product Lesonal 2K Topcoat – Mixed to formulae by weight using 2K Topcoat Tinters (20 in total).

Hardeners

Universal Hardener Standard — For general low bake use on repairs from a single panel up to a complete respray.
Universal Hardener Fast — For faster drying times on repairs from a spot repair up to half a car.
Universal Hardener Extra Fast — For very fast drying times on spot repairs and panel repairs.

Thinners

Multi Thinner Standard — For use on larger repairs, or in warmer conditions.
Multi Thinner Fast — For use on smaller repairs, or in cooler, or less well ventilated application conditions.

Chemical Basis 2K Topcoat – Acrylic resins
Universal Hardeners – Polyisocyanante resins
Multi Thinners – A blend of organic solvents

Method of Use

Substrates Sound original finishes, including thermoplastic acrylics
Lesonal 1K Etch Primer (RTS)
Lesonal 2K Filler 540
Lesonal 2K HS Primer Filler
Lesonal 1K Primer Filler RTS
Lesonal 1K Plastics Primer (RTS)
Lesonal 2K Universal Plastics Primer

2K Topcoat

Technical Data Sheet

02.01.08 L1.03.01

Substrate Preparation
Prior to any sanding work, cleanse the surface of any grease or wax with Lesonal Degreaser SB. Apply using two clean cloths in a wipe on, wipe off process.
Sand with P800 - P1000 wet or P400 dry.
After sanding work is completed, and just prior to the application of topcoat, degrease again thoroughly.

Mixing Ratio (Use Mixing Stick D or Mixing Ratio Chart)
2 volumes - 2K Topcoat
1 volume - Universal Hardener (any)
+ 10% Multi Thinner (any).
Mix in a suitable container and stir well before use.

Spraying Viscosity
When mixed as prescribed, a spraying viscosity of 18-20 sec. DIN Cup 4 at 20°C will be obtained.

Pot Life
After mixing the mixture must be used within 4 hours at 20°C.

Gun Set Up and Spraying Pressure

Spray Gun	Fluid Opening	Spraying Pressure
LVLP (HR) Gravity Feed	1.3 - 1.5 mm	2.0 – 2.5 bar
Conventional Gravity Feed	1.3 - 1.5 mm	2.0 – 2.5 bar
HVLP Gravity Feed	1.3 - 1.5 mm	0.7 bar (at air cap)
Suction Feed (all types)	1.4 - 1.6 mm	As above

Application Technique
Apply two single flowing coats.
Allow to become almost touch dry between each coat. This will take approximately 10 minutes. (This time will be very much influenced by the application conditions).

Theoretical Usage
8 - 10 m2 per litre at a film thickness of 60 microns.
(The usage achieved in practice will depend on many factors including the shape of the object, the roughness of the surface, the application method and the conditions at the time of application).

Equipment Cleaning
Use a good quality gun cleaning thinner before the pot life has expired.

Drying Times

Univ. Hardener Standard	at 20°C	at 60°C
Dust free	20 mins	5 - 10 mins
Tack free	3 - 5 hrs	15 - 20 mins
Dry to handle	8 hrs	25 mins

Univ. Hardener Fast	at 20°C	at 60°C
Dust free	20 mins	5 mins
Tack free	3 hrs	15 mins
Dry to handle	6 hrs	20 mins

Univ. Hardener Ex. Fast	at 20°C	at 60°C
Dust free	20 mins	5 mins
Tack free	2 hrs	12 mins
Dry to handle	5 hrs	15 mins

Infra red (short wave)	Half Power	Full Power
Light colours	3 mins	12 mins
Dark colours	5 mins	6 mins

2K Topcoat

Technical Data Sheet

02.01.08 L1.03.01

Film Thickness 60 - 70 microns in two coats

Spot Repair / Fade Out Technique Reduce the ready for use 2K Topcoat mixture 1:1 with Multi Thinner and apply to the wet edge, then fade out the edge again using neat Lesonal Fade Out Thinner.

Blending Technique When blending a 2K Topcoat repair into an adjacent panel, use Lesonal 2K HS Extra Clear as a blending clear. Reduce the ready for use clearcoat mixture 1:1 with Multi Thinner, then apply to the edge of the 2K Topcoat immediately after application (ie. before the 2K Topcoat has flashed off).

Helpful Tips Do not apply excessively heavy coats or 'double headers', as there is a risk of reduced gloss and poor appearance.

When applying 2K Topcoat over thermoplastic acrylic finishes, to avoid problems caused by solvent sensitivity, extend the flash off time and avoid over application.

Shelf Life 2K Topcoat tinters 01 and 21 : 2 years.
All other 2K Topcoat tinters : 4 years.

Explanation of Batch Numbers

Example: **022 2 168 041**

022	Production plant
2	Year of production
168	Day of production
041	Number of the batch made that day

2K Topcoat Ancillaries (See technical data sheets for these products)

Topspeed - for accelerating the drying time of 2K Topcoat mixtures.

Texture Additive - for reproducing the structure of plastic car parts (refer to Plastic Part Swatch for examples of textured finishes).

Flexible Additive - for softening the 2K Topcoat for use on soft and flexible plastics.

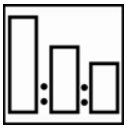
Tinter 01 – part of the mixing scheme. A matting paste for lowering the gloss of 2K Topcoat colours (refer to Car Part Swatch for colour identification).

Autoclear® Classic

FOR PROFESSIONAL USE ONLY

Description

Autoclear Classic is a 2K polyurethane clearcoat, suitable for use on Autobase Plus. In addition, Autoclear Classic clearcoat can be applied wet-on-wet on Sikkens topcoat to maximize the resistance to chemicals and gloss retention. It gives high quality results at a great value.



100 Autoclear Classic
50 P Hardeners
10-20 Plus Reducers

Use Sikkens measuring stick
No. 3 Black

Spray gun set-up:
1.3-1.5 mm

Application pressure:
HVLP max 0.6-0.7 bar at the air cap

2 x 1 coat
First apply a medium closed coat, next apply a full coat after indicated flash off time

Between coats
5-7 minutes at 20°C
Reducer selection according temperature

Before curing
5-10 minutes at 20°C
Flash-off time depending on oven type

Product selection	20°C	60°C
P20 Hardener	8 hours	20 minutes
P25 Hardener	9 hours	25 minutes
P35 Hardener	10 hours	30 minutes

Use suitable respiratory protection
Akzo Nobel Car Refinishes recommends the use of a fresh air supply respirator.

Autoclear® Classic

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Description

Autoclear Classic is a 2K polyurethane clearcoat, suitable for use on Autobase Plus. In addition, Autoclear Classic clearcoat can be applied wet-on-wet on Sikkens topcoat to maximize the resistance to chemicals and gloss retention. It gives high quality results at a great value.

Product and additives

Autoclear Classic

Hardener
P20 Hardener; spot and panel repairs at 15°C-25°C
P25 Hardener; spot and panel repairs at 20°C-30°C
P35 Hardener; larger areas and overall refinishing at 20°C-40°C

Plus Reducers
Plus Reducer Fast; spot and panel repairs, temperature range: 15°C-25°C.
Plus Reducer Medium; spot and panel repairs and large areas, temperature range: 20°C-30°C.
Plus Reducer Slow; larger areas and complete paint jobs, temperature range: 25°C-35°C.
Plus Reducer Extra Slow; to use in extremely hot temperatures, temperature range: above 35°C.

Additives
Autoclear Mat; a matt clearcoat finish to create different clearcoat gloss levels (TDS 5.5.1)
Elast-O-Actif; to elasticize Autoclear Classic making it suitable for plastic parts. See S8.06.03c

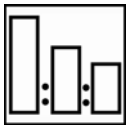
Basic raw materials

Autoclear Classic:	Acrylic and polyester resins
Hardeners:	Poly-isocyanate resins

Suitable substrates

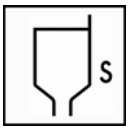
Autobase Plus; after a minimum flash off time of 15 minutes at 20°C

Mixing



Standard system
100 Autoclear Classic
50 P Hardeners
10-20 Plus Reducers
Use measuring stick No. 3 Black

Viscosity



14-16 seconds – DIN Cup 4 at 20°C.

Spray gun set-up / application pressure

Spray gun	Fluid tip – set-up	Application pressure
Gravity feed	1.3-1.5 mm	HVLP max 0.6-0.7 bar at the air cap 2-3 bar at the spray gun air inlet

Autoclear® Classic

FOR PROFESSIONAL USE ONLY

Application process & blending

Apply two single coats, allowing for a 5-7 minutes flash-off time at 20°C between coats.
Allow for a 5-10 minutes flash-off time at 20°C before baking.

- Flash-off between coats; in case of application to larger areas, flash off between coats is minimal.
- Recoatable with **itself** after full drying cycle, sanding becomes necessary after 24 hours

Pot-life

All system combinations	3-4 hours	at 20°C

Film thickness

By using the recommended application: 50-70 µm.

Drying times

Allow for a minimum of 5 minutes flash off time at 20°C before moving the car into a pre-heated drying oven (booth) at 60°C. All drying times relate to standard application and object temperature.

		P20 Hardener	P25 Hardener	P35 Hardener
20°C	**Dust dry**	30 minutes	45 minutes	45 minutes
	Dry to handle*	8 hours	9 hours	10 hours
40°C	**Dust dry**	15 minutes	20 minutes	20 minutes
	Dry to handle*	3 hours	4.5 hours	6 hours
60°C	**Dust dry**	5 minutes	5 minutes	5 minutes
	Dry to handle*	20 minutes	25 minutes	30 minutes

Dry to handle after approximately 10 minutes.
Allow 5 minutes flash off prior to infra red curing
The panel must not reach a temperature above 100°C while curing.
For additional infra red drying information; see TDS S9.01.01

Autoclear® Classic

FOR PROFESSIONAL USE ONLY

Polishability

Dust and minor imperfections can be polished out after the stated air-dry times have been reached, or after a full bake at 60°C object temperature, followed by a cool down of the object to ambient temperature. Carefully sand out dust particles and restore the surface according polishing recommendations.
Ready to polish approximately 60 minutes after the end of the drying cycle.

Material usage

By using the recommended application, the theoretical material usage is ± 6.6 m²/liter RTS mixture.

The practical material usage depends on many factors i.e. shape of the object, roughness of the surface, application techniques, pressure and application circumstances.

Cleaning of equipment

Plus Reducers or solvent borne guncleaners

VOC

The VOC content of this product in ready to use form is max. 512 g/liter.

Product storage

Product shelf-life is determined when products are stored unopened at 20°C.
Avoid extreme temperature fluctuation.

- *Product shelf life data see TDS S9.02.01*

Akzo Nobel Car Refinishes Australia Pty. Ltd.	**Akzo Nobel Car Refinishes New Zealand**
Address: P.O. Box 5086 Garden City VIC. 3207 Australia	**Address:** 15 Thomas Peacock Place Mt. Wellington Aucland 1072 New Zealand
Tel: 61 (0)3 9644 1711 **Fax:** 61 (0)3 9644 1777	**Tel:** 64 (0)9 527 2068

Head Office
Akzo Nobel Car Refinishes B.V., PO Box 3 2170 BA Sassenheim, The Netherlands. www.sikkenscr.com